

Capital Intensity, Thin Capitalization, and Accounting Conservatism Effects on Tax Avoidance with Institutional Ownership as Moderator

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ABSTRACT

Concerns surrounding tax avoidance persist because the practice can erode government tax receipts and, in turn, affect the resources available for sustainable economic development. This research investigates whether capital intensity, thin capitalization, and accounting conservatism are associated with tax avoidance and whether institutional ownership changes those relationships. The analysis covers infrastructure firms listed on the Indonesia Stock Exchange for the 2020–2024 period. The study responds to mixed results in earlier research and to the limited evidence on the moderating function of institutional ownership within Indonesian infrastructure companies. A quantitative approach was applied to secondary information obtained from annual reports and financial statements. Purposive sampling produced 161 firm-year observations. The hypotheses were examined using multiple linear regression and Moderated Regression Analysis (MRA) in IBM SPSS Statistics. The findings show a negative effect of capital intensity on tax avoidance and a positive effect of thin capitalization, whereas accounting conservatism has no significant effect. Institutional ownership strengthens the effect of capital intensity, but weakens the effects of thin capitalization and accounting conservatism on tax avoidance. These results underline the relevance of institutional oversight for corporate tax governance and compliance.

Keywords: Tax Avoidance, Capital Intensity, Thin Capitalization, Accounting Conservatism, Institutional Ownership

INTRODUCTION

Taxes provide an important stream of public revenue and support government spending as well as long-term development programs (Sihombing & Sibagariang, 2020). Because development activities demand substantial funding, tax collection plays a central role in maintaining fiscal capacity and financing public services. The interests of the state and business entities, however, are not always aligned in taxation matters (Muti'ah et al., 2021). Government seeks to maximize tax receipts, while companies commonly treat tax payments as costs that reduce earnings after tax. This difference in objectives may encourage firms to manage their tax burden through various approaches, including tax avoidance. Wijaya and Rahayu (2021) describe tax avoidance as a legally structured effort to reduce tax obligations by making use of regulatory gaps or provisions that leave room for interpretation without formally violating tax law. Even when the arrangement remains lawful, its substance may diverge from the purpose for which the tax rules were established.

Tax avoidance deserves particular attention in Indonesia because taxation supplies a dominant share of state budget revenue. Revenue targets have continued to rise, yet actual tax contributions do not necessarily increase at the same pace, partly because weaknesses in the regulatory framework may create room for taxpayers to reduce their liabilities. Indonesia's relatively low tax ratio has also been cited as a reason to improve compliance and reinforce corporate tax governance (Tandayu et al., 2023). The issue is especially relevant for infrastructure businesses, which generally operate capital-intensive projects financed through substantial fixed assets and borrowing. Such a structure can generate depreciation charges and interest deductions that reduce taxable profit (Dalimah & Wulandari, 2024). The situation involving PT Waskita Karya further illustrates how large debt positions and financial reporting practices can affect corporate tax obligations and may create conditions associated with tax avoidance (Nuari, 2024).

Among the corporate attributes commonly linked to tax avoidance is capital intensity. This measure indicates how much of a firm's asset base is invested in fixed assets; a larger fixed-asset component can produce higher depreciation charges and potentially reduce taxable income (Arieftiara, 2022). Evidence from previous studies, however, is not uniform. Significant effects of capital intensity on tax avoidance were documented by (Hery Vidiyanto and Agustin Fadjarenie (2025), Meizar et al. (2025), and Sari et al. (2023), whereas Ayu and Nurcahyono (2024) as well as Kusuma and Firnanti (2023) reported no significant association.

Empirical conclusions are similarly mixed for thin capitalization and accounting conservatism. Thin capitalization reflects the extent to which a company relies on debt financing and is often operationalized through the debt-to-equity ratio. Since interest expense may be deducted, greater dependence on debt can reduce the amount of income subject to tax (Nataherwin et al., 2023). A positive relationship between thin capitalization and tax avoidance was identified by Prananda and Tumirin (2025), Rohmah and Romadhon (2023), and Yoshida (2023), while Handayani (2025) and Rahman et al. (2023) found no significant effect. Accounting conservatism may also affect taxable outcomes because conservative reporting tends to recognize unfavorable economic events earlier than favorable ones (Ervina et al., 2022). Even so, earlier research has not reached a consistent conclusion, with both positive and negative associations reported between conservatism and tax avoidance.

Institutional ownership is another factor considered relevant to this relationship because institutional shareholders can strengthen governance by monitoring managerial actions. Effective oversight may restrain aggressive tax strategies and may also alter the way firm-level financial characteristics are translated into tax planning decisions. Nevertheless, prior research has not produced a consistent picture of whether institutional ownership moderates the relationships of capital intensity, thin capitalization, and accounting conservatism with tax avoidance.

The present study broadens prior evidence by concentrating on infrastructure companies listed on the Indonesia Stock Exchange, a setting that has received less attention than manufacturing, mining, property, and consumer-goods industries. Capital intensity, thin capitalization, and accounting conservatism are examined as explanatory factors for tax avoidance, while institutional ownership is introduced to determine whether the strength of each relationship changes under different levels of institutional monitoring. Using observations from 2020–2024, the research adds sector-specific evidence to the discussion of corporate tax avoidance in Indonesia.

On this basis, the analysis evaluates how capital intensity, thin capitalization, and accounting conservatism relate to corporate tax avoidance and tests whether institutional ownership modifies each of those relationships. The empirical setting consists of infrastructure firms listed on the Indonesia Stock Exchange during 2020–2024.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Agency Theory

According to Jensen & Meckling (1976) Agency theory describes the relationship between the principal, represented by shareholders or investors, and the agent, represented by managers responsible for managing the company. This relationship involves a separation of ownership and managerial control. Such separation may lead to agency conflicts due to differences in interests between managers and owners. Managers may not always act in accordance with the interests of shareholders, which may ultimately result in losses for shareholders or investors. These conflicts give rise to costs known as agency costs, which include the costs of monitoring management, auditing expenses, and agent compensation (Purba, 2023:24-25).

Trade Off Theory

Modigliani & Miller (1959) Trade-off theory explains the relationship between a company's debt and equity, with the objective of achieving a balance between costs and benefits. The theory assumes that firms should determine an optimal capital structure by balancing the use of debt and equity. The use of debt can provide tax benefits through the tax shield, which encourages firms to utilize debt up to a certain level to maximize firm value thereby creating an incentive for tax avoidance. Together, these theories establish the conceptual basis for assessing how financial characteristics relate to corporate tax behavior.

Capital Intensity and Tax Avoidance

Capital intensity refers to the extent to which fixed assets or capital are utilized in a company's operations. From a business perspective, fixed assets support the company's productivity in generating profits. The ownership of fixed assets results in depreciation expenses that are recognized annually. These depreciation expenses can be deducted from income, thereby affecting the company's taxable income. From the perspective of Agency Theory, differences in interests may arise between the principal, represented by shareholders, and the agent, represented by management. Shareholders generally expect management to increase firm value and generate sustainable returns. Meanwhile, management has an interest in obtaining incentives based on the performance achieved. One strategy that management may undertake is increasing investment in fixed assets, which generates depreciation expenses. These depreciation expenses can reduce taxable income and consequently lower the amount of tax paid by the company. In this study, tax avoidance is measured using the Cash Effective Tax Rate (CETR), where a lower CETR indicates a higher level of tax avoidance. Therefore, the higher the capital intensity, the lower the CETR, indicating an increase in tax avoidance practices. Accordingly, capital intensity is expected to have a positive effect on tax avoidance.

Significant effects of capital intensity on tax avoidance were documented by Hery Vidiyanto and Agustin Fadjaranie (2025), Meizar et al. (2025), and Sari et al. (2023), whereas Ayu and Nurcahyono (2024b) as well as Kusuma and Firnanti (2023) reported no significant association, the first hypothesis is formulated as follows:

H₁: Capital intensity has a positive effect on tax avoidance.

Thin Capitalization and Tax Avoidance

Thin capitalization refers to a condition in which a company has a higher proportion of debt relative to equity, which is generally measured using the Debt to Equity Ratio (DER). A higher proportion of debt in the capital structure provides greater funding for the company to support its operational activities. On the other hand, the use of debt generates interest expenses that may be recognized as deductible expenses, thereby reducing taxable income through a tax shield. Therefore, a debt-dominated financing structure is often associated with a company's strategy for managing its tax burden. Based on Trade-Off Theory, companies consider the tax benefits of debt financing against the risks arising from higher levels of debt, such as financial distress and bankruptcy costs. Therefore, companies do not necessarily use excessive debt to reduce their tax burden but determine an optimal level of debt at which the benefits obtained outweigh the associated risks. In this study, tax avoidance is measured using the Cash Effective Tax Rate (CETR). A higher CETR indicates a greater proportion of taxes paid relative to pre-tax income, reflecting a lower level of tax avoidance. Therefore, an increase in thin capitalization is expected to be accompanied by an increase in CETR and a lower level of tax avoidance. Accordingly, thin capitalization is expected to have a negative effect on tax avoidance.

Research by Nulhakim & Tarmidi (2025), Rohmah & Romadhon (2023), and Yoshida (2023a) indicates that thin capitalization influences tax avoidance, whereas Handayani (2025) and Rahman et al. (2023) did not find a significant effect. The second hypothesis is formulated as follows:

H₂: Thin capitalization has a negative effect on tax avoidance.

Accounting Conservatism and Tax Avoidance

Accounting conservatism in financial reporting refers to a condition in which a company does not immediately recognize or estimate revenues but recognizes liabilities and potential losses more promptly. A conservative financial reporting strategy tends to result in lower reported accounting profits, allowing the financial statements to more realistically reflect the company's financial condition without overstating its performance. According to Agency Theory, managers have incentives to present financial statements conservatively to minimize the company's tax burden and improve cash flow efficiency. Therefore, the application of accounting conservatism serves as a control mechanism to limit managers' opportunistic behavior in aggressively managing earnings in financial reporting, both for managerial and tax purposes. Accounting conservatism may also be utilized as a form of legal tax planning, as the earlier recognition of expenses can reduce taxable income and consequently

lower the company's tax burden. In this study, tax avoidance is measured using the Cash Effective Tax Rate (CETR), in which a lower CETR indicates a higher level of tax avoidance. Therefore, companies that apply accounting conservatism tend to have a greater tendency to engage in tax avoidance. Accordingly, accounting conservatism is expected to have a positive effect on tax avoidance.

Research conducted by Apriliana & Margie (2024a), Pratiwi & Trisnawati (2023), and Sa'ad et al. (2023) indicates that accounting conservatism influences tax avoidance. The third hypothesis is formulated as follows:

H3: Accounting conservatism has a positive effect on tax avoidance.

The Moderating Role of Institutional Ownership

Institutional ownership refers to the ownership of a company's shares by institutions, such as investment companies, pension funds, banks, or insurance companies. Institutional ownership provides resources and the ability to monitor management more effectively. Based on Agency Theory, institutional ownership serves as a monitoring mechanism that can reduce conflicts of interest between management and shareholders. The greater the institutional ownership, the more effective the monitoring of management decisions, including decisions regarding fixed asset management and the company's tax policies. Effective monitoring encourages management to use fixed assets according to the company's operational needs, thereby reducing the tendency to utilize depreciation expenses as a means of reducing the company's tax burden. Therefore, institutional ownership is expected to weaken the effect of capital intensity on tax avoidance.

The findings of Rachmania and Zahra (2025b) provide empirical support for the moderating role of institutional ownership in this relationship.

H4: Institutional ownership weakens the effect of capital intensity on tax avoidance.

Institutional ownership serves as a monitoring mechanism for a company's financing policies, including the use of debt in its capital structure. One of the main concerns of institutional investors is the level of debt used by the company, as reflected in the Debt to Equity Ratio (DER). Institutional investors tend to monitor the use of debt to ensure that it remains at an optimal level, as excessive debt can increase financial risks, such as the risk of default, dependence on creditors, and potential financial distress. Based on Agency Theory, institutional ownership functions as a monitoring mechanism that can reduce conflicts of interest between management and shareholders. Through such monitoring, institutional investors encourage management not to excessively utilize debt as a tax avoidance strategy through the tax benefits of interest expenses (tax shield). Therefore, institutional ownership is expected to weaken the effect of thin capitalization on tax avoidance.

This argument aligns with the findings of Rizki et al. (2026), who reported a moderating role of institutional ownership in the relationship between thin capitalization and tax avoidance.

H5: Institutional ownership attenuates the impact of thin capitalization on tax avoidance

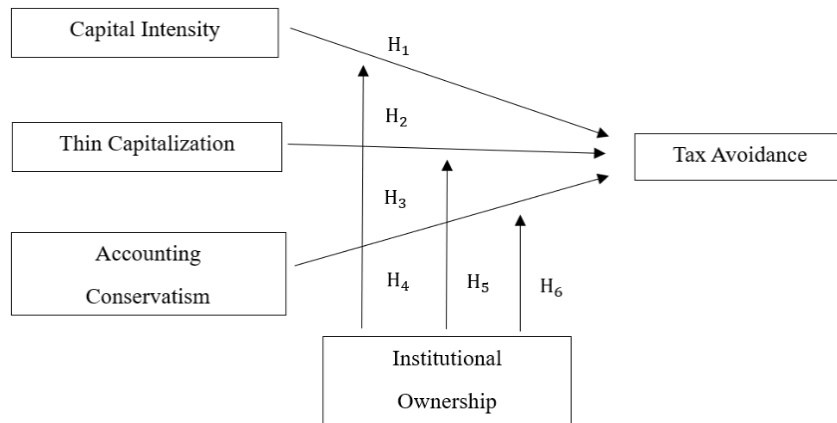
Accounting conservatism is an accounting policy that applies the principle of prudence by recognizing potential losses and expenses earlier, while revenues are recognized when they are actually realized. The application of accounting conservatism can affect the amount of reported profit and, consequently, potentially affect the company's tax burden. Although accounting conservatism may be utilized by management as part of an earnings management or tax burden management strategy, this tendency can be minimized through monitoring by institutional ownership. Based on Agency Theory, institutional ownership serves as a monitoring mechanism that can reduce conflicts of interest between management and shareholders. Institutional owners with a long-term investment orientation and stronger monitoring capabilities can encourage management to apply accounting conservatism appropriately in accordance with accounting standards rather than using it as a means of tax avoidance. Therefore, institutional ownership is expected to weaken the effect of accounting conservatism on tax avoidance.

This expectation is supported by Sari and Mayangsari (2024), who found that institutional ownership moderates

the relationship between accounting conservatism and tax avoidance.

H6: Institutional ownership weakens the effect of accounting conservatism on tax avoidance.

Conceptual Framework



METHODOLOGY

Research Design

This study adopts a quantitative approach using an explanatory research design to examine causal relationships among the variables. The research empirically investigates the proposed hypotheses concerning the effects of capital intensity, thin capitalization, and accounting conservatism on tax avoidance, with institutional ownership as a moderating variable. The study relies on secondary data obtained from publicly available annual reports of companies operating in the infrastructure sector. The required financial information was collected from the official Indonesia Stock Exchange website (www.idx.co.id) and the respective websites of the sample companies. Furthermore, panel data are employed to integrate cross-sectional and time-series dimensions, allowing the analysis to capture variations across firms and over time and providing a more comprehensive basis for empirical testing.

This study applies multiple linear regression based on the Ordinary Least Squares (OLS) approach, complemented by Moderated Regression Analysis (MRA), to assess the relationships between capital structure, transfer pricing, fixed asset intensity, and tax avoidance, including the moderating effect of firm size. OLS is employed to estimate the direct effects of the independent variables on tax avoidance within a single regression framework, without incorporating firm-specific effects or dynamic panel estimators. Prior to hypothesis testing, a series of classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation assessments, were conducted to evaluate the robustness and reliability of the regression estimates.

Population and Sample

This study covers all infrastructure companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2024. The sample was determined through purposive sampling based on several criteria, namely continuous listing throughout the study period, availability of complete annual financial statements, and positive reported earnings to minimize potential bias in the measurement and interpretation of the Cash Effective Tax Rate (CETR). The selection process yielded 48 eligible companies, corresponding to 161 firm-year observations. Prior to conducting the hypothesis tests, the dataset underwent preliminary screening to identify observations that could potentially affect the regression results. Outliers were assessed using standardized residual analysis (Z-scores), leading to the removal of 14 observations. Following this procedure, the final sample consisted of 147 firm-year observations used in the panel data regression analysis.

Operational Definition of Variables

This study employs three categories of variables: dependent, independent, and moderating variables. To ensure empirical testability, the operational definitions and measurement proxies for each variable are summarized in Table 1.

Table 1: Operationalization of Variables

Variable Type	Variable Name	Measurement / Proxy
Dependent (Y)	Tax Avoidance	$CETR = \frac{\text{Income Tax Payment}}{\text{Profit Before Tax}}$
Independent (X ₁)	Capital Intensity	$CI = \frac{\text{Total Fixed Assets}}{\text{Total Assets}}$
Independent (X ₂)	Thin Capitalization	$DER = \frac{\text{Total Liabilities}}{\text{Total Equity}}$
Independent (X ₃)	Accounting Conservatism	$CONACC = \frac{NI + DEP - CFO}{\text{Total Assets}} \times (-1)$
Moderating (Z)	Institutional Ownership	$IO = \frac{\text{Institutional Shares Owned}}{\text{Total Outstanding Shares}} \times 100\%$

Data Analysis Procedure

The empirical analysis was conducted using multiple linear regression with the Ordinary Least Squares (OLS) approach and Moderated Regression Analysis (MRA), with all statistical procedures performed using IBM SPSS Statistics. The regression model was designed to assess the effects of Capital Intensity, Thin Capitalization, and Accounting Conservatism on Tax Avoidance, while also examining the moderating effect of Institutional Ownership.

Before proceeding to hypothesis testing, diagnostic tests were performed to assess the suitability of the regression model. These tests comprised the One-Sample Kolmogorov-Smirnov test for residual normality, Tolerance and Variance Inflation Factor (VIF) measures for multicollinearity, the Glejser test for heteroscedasticity, and the Durbin-Watson statistic for autocorrelation. The model's explanatory power was subsequently assessed using the Adjusted R-squared, while the F-test was applied to evaluate the joint significance of the regression model.

Individual hypotheses were examined using the t-test at a 5% significance level to determine the effects of Capital Intensity (X₁), Thin Capitalization (X₂), and Accounting Conservatism (X₃) on Tax Avoidance (Y). Furthermore, MRA was employed by incorporating the interaction terms between Institutional Ownership (Z) and each independent variable to determine whether institutional ownership strengthens or weakens the respective relationships with Tax Avoidance.

DATA ANALYSIS AND RESULTS

Descriptive Statistics

Descriptive statistical analysis was conducted to provide an overview of the data distribution across 147 firm-year observations, covering the dependent variable (tax avoidance), independent variables (capital intensity, thin capitalization, accounting conservatism), and the moderating variable (institutional ownership).

Table 2: Descriptive Statistic

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Tax Avoidance	147	0.002	0.978	0.30558	0.207845
Capital Intensity	147	0.005	0.955	0.63968	0.281942
Thin Capitalization	147	0.003	6.802	1.22133	1.165468
Accounting Conservatism	147	-0.696	0.520	0.01827	0.085674

Institutional Ownership	147	-0.038	1.000	0.68013	0.253792
Valid N (listwise)	147				

After 14 outlying observations were removed, 147 observations remained in the analysis, as reported in Table 2. Tax avoidance ranged from 0.002 to 0.978, with an average of 0.30558 and a standard deviation of 0.207845. The mean capital intensity was 0.63968, meaning that fixed assets represented about 63.97% of total assets on average among the sampled infrastructure firms. Thin capitalization averaged 1.22133, indicating that debt financing generally exceeded equity financing in the sample. The mean value of accounting conservatism was comparatively small at 0.01827. Institutional ownership averaged 0.68013, the largest mean among the variables, showing that institutional shareholders controlled a substantial portion of outstanding shares. Taken together, the minimum, maximum, and dispersion measures indicate meaningful variation across the observed variables.

Classical Assumption Tests

Tests of classical assumptions are conducted before hypothesis testing to ensure that the regression model meets key statistical requirements. These diagnostic procedures include tests for normality, multicollinearity, heteroscedasticity, and autocorrelation.

Table 3: Normality Test

One-Sample Kolmogorov-Smirnov Test			
			Unstandardized Residual
N			147
Normal Parameters ^{a,b}	Mean		0.0000000
	Std. Deviation		0.19189314
Most Extreme Differences	Absolute		0.071
	Positive		0.071
	Negative		-0.048
Test Statistic			0.071
Asymp. Sig. (2-tailed)			0.071
Monte Carlo Sig. (2-tailed) ^d	Sig. 99% Confidence Interval		0.068
		Lower Bound	0.062
		Upper Bound	0.074

Before the hypotheses were tested, classical assumption tests were performed using the final dataset of 147 observations, following the exclusion of 14 influential observations. These tests were conducted to assess whether the regression model met the required statistical assumptions. The normality assessment was carried out using the Kolmogorov-Smirnov test, which produced an Asymp. Sig. (2-tailed) value of 0.071, exceeding the 0.05 significance threshold. This result indicates that the regression residuals are normally distributed.

Table 4: Multicollinearity Test

Model		Collinearity Statistic	
		Tolerance	VIF
1	(Constant)		
	Capital Intensity	0.857	1.166
	Thin Capitalization	0.843	1.187
	Accounting Conservatism	0.968	1.033
	Institutional Ownership	0.958	1.044

Potential linear dependence among the explanatory variables was examined through the multicollinearity test summarized in Table 4. The assessment relies on the tolerance values and Variance Inflation Factor (VIF) statistics for each variable.

Table 5: Heteroscedasticity Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.550	0.213		2.585	0.011
	Capital Intensity	0.048	0.224	0.019	0.213	0.832
	Thin Capitalization	0.023	0.055	0.038	0.419	0.676
	Accounting Conservatism	0.376	0.694	0.046	0.541	0.589
	Institutional Ownership	0.112	0.236	0.040	0.474	0.636

The Glejser test was employed to determine whether the regression model exhibited non-constant residual variance across observations. The test results indicate that the significance levels of all independent variables exceeded 0.05. Therefore, no evidence of heteroscedasticity was identified, suggesting that the regression model satisfies the assumption of homoscedasticity, with residual variance remaining relatively constant across observations.

Table 6: Autocorrelation Test

Model	R	R square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.384 ^a	0.148	0.124	0.194577	1.935

The Durbin-Watson test was applied to examine the possibility of correlation between regression residuals across consecutive observation periods. The analysis produced a Durbin-Watson statistic of 1.935. As this value lies within the acceptable range between the upper bound (du) and $4 - du$, the results indicate that the regression model does not exhibit autocorrelation and therefore satisfies the required assumption.

Coefficient of Determination (R^2)

Table 7: Coefficient of Determination (R^2)

Model	R	R square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.371 ^a	0.138	0.120	0.194577	0.195019

Based on the results of the coefficient of determination analysis in Table 7, the Adjusted R Square value was found to be 0.120. This indicates that 12% of the variation in tax avoidance can be explained by capital intensity, thin capitalization, and accounting conservatism, while the remaining 88% is influenced by other factors outside the research model.

Hypothesis Testing

Table 8: F-Test

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.869	3	0.290	7.612	<0,001
	Residual	5.439	143	0.038		
	Total	6.307	146			

The F-test was performed to examine whether the independent variables jointly influence the dependent variable. The regression results show an F-value of 7.612 with a significance level of less than 0.001 ($p < 0.05$). Since the significance value is below the 0.05 threshold, the regression model is statistically significant. These findings indicate that X1 (Capital Intensity), X2 (Thin Capitalization), and X3 (Accounting Conservatism) simultaneously have a significant effect on the dependent variable, Tax Avoidance.

Table 9: Hypothesis Testing (t-Test) and Multiple Linear Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.385	0.041		9.446	<0.001
	Capital Intensity	-0.224	0.062	-0.304	-3.624	<0.001
	Thin Capitalization	0.047	0.015	0.263	0.263	0.002
	Accounting Conservatism	0.362	0.190	0.149	0.149	0.058

The multiple linear regression analysis produced the following equation: $CETR = 0.385 - 0.224X_1 + 0.047X_2 + 0.362X_3 + e$. The results indicate that Capital Intensity (X_1) has a negative and statistically significant effect on CETR, as reflected by a t-value of -3.624 and a significance level of less than 0.001. Since a lower CETR indicates a higher level of tax avoidance, this finding suggests that greater capital intensity is associated with increased tax avoidance, supporting H1. Thin Capitalization (X_2) shows a positive and significant effect on CETR, with a t-value of 0.263 and a significance value of 0.002. This indicates that higher thin capitalization is associated with a higher CETR and, consequently, lower tax avoidance, supporting H2. In contrast, Accounting Conservatism (X_3) has a positive but statistically insignificant effect on CETR, with a t-value of 0.140 and a significance value of 0.058 (> 0.05). Therefore, H3 is not supported.

Table 10: Moderated Regression Analysis (MRA)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	0.634	0.094		6.718	<0.001
	CI	-0.818	0.162	-1.110	-5.062	<0.001
	DER	0.189	0.047	1.061	4.038	<0.001
	KA	1.494	0.354	0.616	4.218	<0.001
	KI	-0.381	0.131	-0.466	-2.912	0.004
	CI KI	0.858	0.223	1.065	3.843	<0.001
	DER KI	-0.187	0.060	-0.864	-3.097	0.002
	KA KI	-1.791	0.479	-0.541	-3.735	<0.001

Multiple regression analysis with moderation yielded the equation $CETR = 0.634 - 0.818X_1 + 0.189X_2 + 1.494X_3 - 0.381X_4 + 0.858X_5 - 0.187X_6 - 1.791X_7 + e$. Based on the MRA results, the interaction terms of capital intensity, thin capitalization, and accounting conservatism moderated by institutional ownership show a significant influence on tax avoidance. Thus, H₄, H₅, and H₆ are accepted.

DISCUSSION

The Effect of Capital Intensity on Tax Avoidance

The hypothesis testing results show that capital intensity has a negative and significant effect on the Cash Effective Tax Rate (CETR). The negative coefficient indicates that the higher the level of capital intensity, the lower the CETR. In this study, tax avoidance is measured using CETR, in which a lower CETR indicates a higher level of tax avoidance. Therefore, the results indicate that capital intensity has a positive effect on tax avoidance. This finding is consistent with the first hypothesis, which states that capital intensity affects tax avoidance. Companies with high capital intensity tend to invest in fixed assets to support and ensure the continuity of their operations. A higher amount of fixed assets generates greater depreciation expenses. These depreciation expenses may be deducted from taxable income, thereby reducing the amount of corporate income tax payable. As a result, the amount of tax paid becomes lower relative to pre-tax income. This condition is reflected in a lower CETR, indicating a higher level of tax avoidance.

Based on Agency Theory, differences in interests may arise between the principal and the agent. As the agent, management seeks to improve the company's performance and maximize after-tax profit. One approach that may be undertaken is increasing investment in fixed assets, which generates depreciation expenses. These depreciation expenses can reduce taxable income and, consequently, lower the company's tax burden. Therefore, higher capital intensity is associated with a greater tendency for companies to engage in tax avoidance.

The present findings are consistent with the studies of Vidiyanto and Fadjarenie (2025), Meizar et al. (2025), and Sari et al. (2023), which reported that capital intensity significantly influences tax avoidance. However, the findings differ from those of Ayu and Nurcahyono (2024) and Kusuma and Firnanti (2023), who found no significant relationship between capital intensity and tax avoidance. These inconsistencies may be attributed to differences in research settings, industrial characteristics, observation periods, and the measurement of tax avoidance across studies.

The Effect of Thin Capitalization on Tax Avoidance

The hypothesis testing results show that thin capitalization has a positive and significant effect on the Cash Effective Tax Rate (CETR). The positive coefficient indicates that a higher level of thin capitalization is associated with a higher CETR. An increase in CETR indicates that the company pays a greater proportion of tax relative to its pre-tax income. Therefore, higher thin capitalization is associated with a lower level of tax avoidance, resulting in the acceptance of the second hypothesis, which states that thin capitalization has a negative effect on tax avoidance. This finding indicates that infrastructure sector companies do not excessively utilize debt as a means of reducing their tax burden. Although the use of debt generates interest expenses that may provide a tax shield by reducing taxable income, companies continue to consider the risks associated with a high proportion of debt, such as increased financial costs, default risk, and potential financial distress. Therefore, companies tend to maintain their capital structure at an optimal level, indicating that debt financing is not solely intended to facilitate tax avoidance.

Trade-Off Theory explains that companies balance the tax benefits obtained from debt financing against the financial risks arising from its use. As long as the benefits of debt financing outweigh the associated risks, companies may continue to use debt as a source of financing. However, as the proportion of debt increases, companies become more cautious about additional borrowing because of the increasing risk of financial distress and bankruptcy costs. This condition encourages companies to continue fulfilling their tax obligations, as reflected in the higher CETR, which indicates a lower level of tax avoidance.

The present findings are consistent with those reported by Prananda and Tumirin (2025), Rohmah and Romadhon (2023), and Yoshida (2023) who also found that thin capitalization significantly influences tax avoidance. However, the results differ from those of Handayani (2025) and Rahman et al. (2023), who reported no significant relationship between thin capitalization and tax avoidance. These differences may be attributable to variations in industry characteristics, observation periods, and firms' financing policies, which may influence the extent to which debt financing is used as a tax planning strategy.

The Effect of Accounting Conservatism on Tax Avoidance

The hypothesis testing results show that accounting conservatism has a positive but insignificant effect on the Cash Effective Tax Rate (CETR). Since the significance value exceeds 0.05, accounting conservatism does not have a significant effect on tax avoidance. Therefore, the result does not support the third hypothesis, which states that accounting conservatism has a positive effect on tax avoidance. This finding may be attributed to fundamental differences between commercial financial reporting policies and fiscal reporting requirements. In commercial financial reporting, companies are permitted to apply the principle of conservatism by recognizing expenses or losses earlier as a form of prudence in preparing financial statements. In contrast, tax regulations generally recognize expenses based on applicable fiscal requirements and the actual occurrence of the costs. This difference in recognition may prevent the application of accounting conservatism from directly affecting a company's tendency to engage in tax avoidance.

Based on Agency Theory, managers have the authority to determine financial reporting policies, including the

application of accounting conservatism. However, the results of this study do not support the theoretical expectation. This may be because of differences in the treatment of accounting standards and tax regulations. Some expenses recognized under accounting conservatism are not fully recognized as deductions from taxable income in fiscal calculations. Therefore, the application of accounting conservatism does not directly affect the level of tax avoidance undertaken by the company. In this context, the application of accounting conservatism primarily reflects management's accountability to shareholders as principals by presenting financial statements prudently and avoiding overstatement of the company's financial condition. Consequently, the resulting financial information can remain reliable and useful as a basis for decision-making.

This result agrees with Jumailah (2020) and Wijayanti et al. (2025), who also concluded that accounting conservatism does not significantly affect tax avoidance. A different conclusion was reached by Apriliana and Margie (2024), Pratiwi and Trisnawati (2023), and Sa'ad et al. (2023), who documented significant relationships. Variation in research setting, industry structure, period of observation, and the way accounting policies are implemented may account for these different empirical outcomes.

Moderating Effect of Institutional Ownership on the Relationship Between Capital Intensity and Tax Avoidance

The hypothesis testing results show that institutional ownership strengthens the effect of capital intensity on tax avoidance, resulting in the rejection of the fourth hypothesis. Institutional ownership is proven to moderate the relationship between capital intensity and tax avoidance and functions as a pure moderating variable. The results indicate that higher institutional ownership strengthens the effect of capital intensity on CETR, thereby reducing the tendency of companies to engage in tax avoidance. This finding suggests that institutional ownership encourages companies to pay taxes in accordance with applicable regulations, even when they have a high level of capital intensity. Accordingly, fixed asset management becomes more optimal and aligned with operational needs, so the use of fixed assets is not solely intended to obtain tax benefits through depreciation expenses.

Based on Agency Theory, institutional ownership serves as a monitoring mechanism that can reduce conflicts of interest between management and shareholders. Higher institutional ownership enables more effective monitoring of management decisions, including decisions related to fixed asset management. Such monitoring encourages management to manage fixed asset investments more responsibly and in accordance with the company's interests. Therefore, the presence of institutional ownership strengthens the effect of capital intensity on CETR, which reflects a lower level of tax avoidance.

Rachmania and Zahra (2025) similarly found that institutional ownership significantly moderates the capital intensity-tax avoidance relationship, supporting the present result. Ekawati and Utami (2024), in contrast, did not identify a significant moderating effect. These different conclusions may arise from variations in industry context, the quality of corporate governance, the period analyzed, and the extent to which institutional investors actively monitor management.

Moderating Effect of Institutional Ownership on the Relationship Between Thin Capitalization and Tax Avoidance

The hypothesis testing results show that institutional ownership weakens the effect of thin capitalization on tax avoidance, supporting the fifth hypothesis. In this study, tax avoidance is measured using the Cash Effective Tax Rate (CETR), whereby an increase in CETR indicates a lower level of tax avoidance. Institutional ownership is proven to moderate the relationship between thin capitalization and tax avoidance and functions as a pure moderating variable. This finding indicates that higher institutional ownership reduces the effect of thin capitalization on CETR, reflecting a lower level of tax avoidance.

Based on Agency Theory, institutional ownership serves as a monitoring mechanism that can reduce conflicts of interest between management and shareholders. Institutional investors have the ability to monitor and evaluate the company's financing policies, encouraging management to use debt more optimally rather than solely to obtain tax benefits through interest expenses (tax shield). Therefore, higher institutional ownership weakens the

effect of thin capitalization on tax avoidance because institutional investors' monitoring limits management's tendency to excessively utilize debt as a means of reducing the tax burden.

The moderating result is consistent with Rizki et al. (2026), who also reported a significant role for institutional ownership in the relationship between thin capitalization and tax avoidance. Yanti and Dwi Astuti (2023), however, concluded that institutional ownership does not moderate that relationship. Differences in sample composition, industry setting, governance arrangements, and the intensity of institutional supervision may account for the contrasting findings.

Moderating Effect of Institutional Ownership on the Relationship Between Accounting Conservatism and Tax Avoidance

The hypothesis testing results show that institutional ownership weakens the effect of accounting conservatism on tax avoidance, supporting the sixth hypothesis. Institutional ownership is proven to moderate the relationship between accounting conservatism and tax avoidance and functions as a pure moderating variable. This finding indicates that higher institutional ownership reduces the effect of accounting conservatism on CETR, reflecting a lower level of tax avoidance. The application of accounting conservatism is therefore more directed toward producing reliable financial statements in accordance with the prudence principle rather than serving as a means of reducing the company's tax burden.

Based on Agency Theory, the relationship between the principal and the agent involves potential conflicts of interest because management has opportunities to act opportunistically through accounting and tax policies. Therefore, institutional ownership plays a role in limiting such opportunistic behavior by encouraging management to apply accounting conservatism in accordance with financial reporting objectives rather than using it as a means of tax avoidance. Accordingly, higher institutional ownership weakens the effect of accounting conservatism on tax avoidance because stronger monitoring limits management's ability to utilize conservative accounting policies as a means of reducing the tax burden.

The finding is consistent with Sari and Mayangsari (2024), who identified institutional ownership as a moderator of the relationship between accounting conservatism and tax avoidance. Margareth et al. (2024)m, however, reported no significant moderating role. The contrasting evidence may be explained by differences in governance quality, industry characteristics, and the level of active monitoring carried out by institutional investors in each research setting.

CONCLUSION

Based on the empirical findings, capital intensity is found to have a significant and negative relationship with tax avoidance, as reflected by the Cash Effective Tax Rate (CETR). This implies that companies with greater investment in fixed assets tend to report lower CETR values, which are associated with higher levels of tax avoidance. In contrast, thin capitalization demonstrates a significant positive relationship with CETR, suggesting that greater reliance on debt financing is associated with a reduced tendency toward tax avoidance. Accounting conservatism, however, does not significantly influence CETR, indicating that differences between financial accounting practices and tax regulations may limit its impact on corporate tax avoidance. The findings also demonstrate that institutional ownership plays a moderating role in these relationships. Specifically, institutional ownership weakens the relationship between capital intensity and CETR while strengthening the relationships between thin capitalization, accounting conservatism, and CETR.

Further studies are encouraged to broaden the research scope by examining other industrial sectors and considering additional determinants of tax avoidance, including corporate governance, profitability, and corporate risk. From a corporate perspective, the findings highlight the need to integrate tax compliance and transparency into asset management and financing decisions. Meanwhile, tax authorities and policymakers may use these findings to enhance supervision of companies characterized by substantial fixed asset investments and debt financing, while strengthening corporate governance mechanisms to reduce the potential for tax avoidance.

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